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Foreword

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'More for less' has become something of a mantra as we have all had to knuckle down to find ways of keeping investment rolling in times of no money. It has some rival slogans in the shape of 'better for less' or even 'a bit less for a lot less' – but the point is that, to use that well-worn but not yet worn-out phrase of Ernest Rutherford, 'We haven't got the money, so we've got to think.'

Some of this thinking has been channeled through the parallel programmes of work undertaken by Infrastructure UK in its cost-of-delivery study, and by the Cabinet Office in framing a new government construction strategy; and only a light touch was necessary to coordinate these exercises as there was an extraordinarily high degree of consensus.

In both cases, the studies concluded that it is reasonable to target a saving of 15–20% from the cost of constructing the facilities that the UK still desperately needs, particularly in renewing our infrastructure – whether that might be economic or social.

Furthermore, the reduction is expressed in real terms: that is, without taking advantage of the keener pricing coming forward in highly competitive market conditions. Instead, the reductions will come from three primary sources

- from a tighter understanding of how value is delivered through built facilities, so that this leads the identification and need and the designer's response to it, without over-specification or the imposition of needless standards
- from the elimination of wasteful processes for the design, procurement, construction and management of a project, including the more consistent use of standard processes so that every team for every project does not have to start from scratch
- from making greater use of the capacity of the supply side to contribute value to the process through the avoidance of over-prescriptive specifications, and by encouraging integration of the design and construction team to unlock the potential of product manufacturers and trade contractors to innovate.

The expectation is that the greater proportion of the saving will come from the first of the above factors – from more intelligent design – and civil engineers will be at the forefront of this, as it is on drawing boards (digital or otherwise) that real value is made, making sure that the purpose is clear and the proposition is fit for that purpose.

Making the best use of finite resources is always the task of the designer – indeed it can stand as one definition of what good design is – but never more so than when we confront two of the key challenges that now confront us: not enough cash and too much carbon dioxide.

To come out the other side of a period of severe constraint without significant improvement both in the structure and practice of the industry, and in the value of its output, would, however, be little short of tragic. Instead we should take it as a golden opportunity to follow Rutherford's injunction and do some new thinking – about how we make the most of existing assets and the best of new ones.

In short: less money, energy and internal conflict; more imagination, innovation, efficiency and collaboration.

Thankfully – as shown by the papers in this special issue of *Civil Engineering* – the civil engineering profession has already firmly grasped the opportunity. Civil engineers in both the public and private sectors have done a lot of new thinking, put their thoughts into practice and achieved some highly beneficial results.

I commend these papers to you and trust they will prove to be a valuable reference for the whole construction industry.